

No. 768,693.

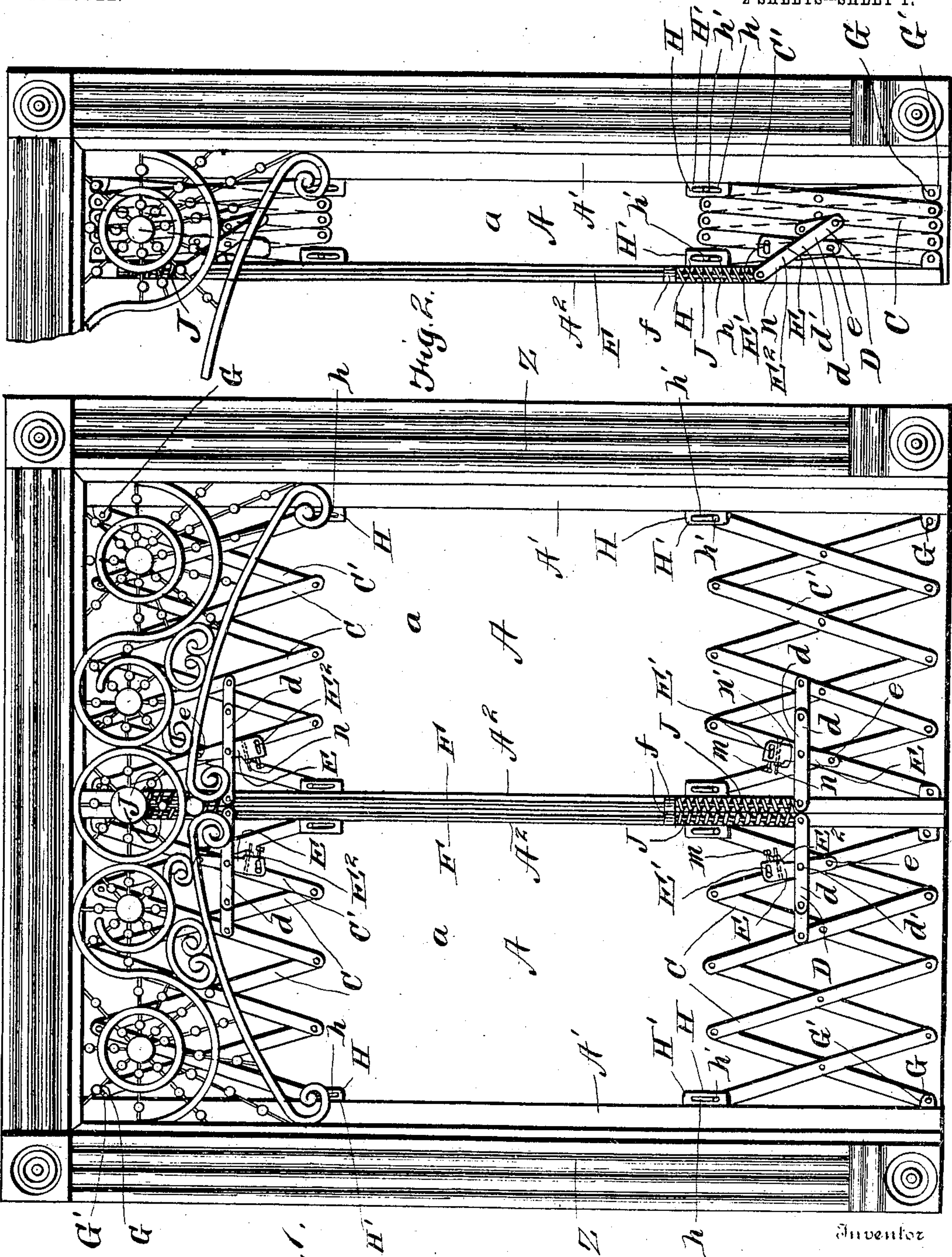
PATENTED AUG. 30, 1904.

G. J. RECORD.
DOOR OR SCREEN.

APPLICATION FILED JAN. 18, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

Fig. 1.
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Fig. 2.
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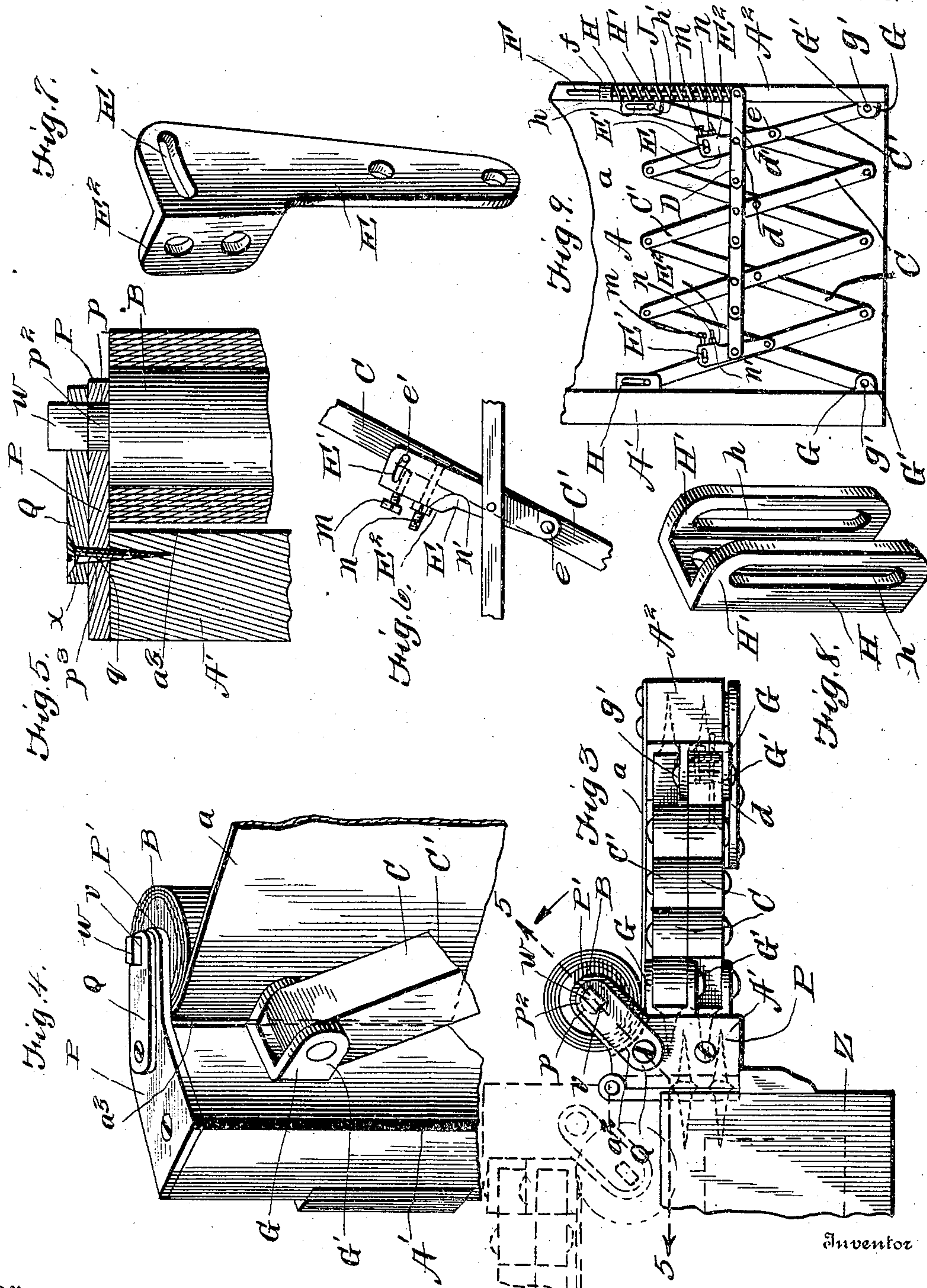
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James C. Babcock

By

George J. Record
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UNITED STATES PATENT OFFICE.

GEORGE J. RECORD, OF CONNEAUT, OHIO.

DOOR OR SCREEN.

SPECIFICATION forming part of Letters Patent No. 768,693, dated August 30, 1904.

Application filed January 18, 1904. Serial No. 189,562. (No model.)

To all whom it may concern:

Be it known that I, GEORGE J. RECORD, a citizen of the United States, residing at Conneaut, in the county of Ashtabula and State of Ohio, have invented certain new and useful Improvements in Doors or Screens; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to doors, screens, partitions, and similar constructions adapted to be drawn out at will and folding automatically into small compass; and it consists in the construction and combination of parts herein-after more particularly set forth and claimed.

Figure 1 represents a front view of a closed folding door embodying my invention. Fig. 2 represents a similar view of one half or section of the same folded for opening the doorway. Fig. 3 represents a plan view of one of the said sections thus folded, its position when turned back on its hinges being indicated by dotted lines. Fig. 4 represents a perspective detail view of the upper end of the spring-roller and proximate parts. Fig. 5 represents an enlarged detail sectional view on line 5 5 of Fig. 3, showing the upper part of the spring-roller and its journal in elevation. Fig. 6 represents a detail perspective view of the adjustable plate for governing the extension of the door-section and the parts to which it is attached. Fig. 7 represents a detail perspective view of said plate enlarged. Fig. 8 represents a detail perspective view of the guide-casing H, and Fig. 9 represents a front elevation of a modification of the lazy-tong bars with proximate parts.

A designates the two corresponding sections of a folding door, each of which consists of two light wooden uprights or strips A' A^2 , a sheet a of flexible material attached at one edge to the upright A^2 , a vertically-arranged spring-roller B, journaled in brackets attached to upright A' and having the other edge of said sheet attached to it for winding, and lazy-tong bars C, which are arranged in series attached at their ends to the said uprights and provided with means for holding them extended at will against the pull of the spring-

roller. The sheet a constitutes the body of the door. The lazy-tong bars constitute a frame for bracing it besides holding it extended, and each section of the door is complete in itself, being adapted to be used as an entire door for a narrow doorway, as a screen or curtain, a partition between desks, or wherever else it may be useful. When the two sections are used together, as shown in Fig. 1, the uprights A^2 meet in the middle of the doorway. The door-casing of each section is provided with ornamental grill figures s at the top, as shown, forming a complete design and overlapping the upper part of the door, as usual in portières.

A single series of lazy-tong bars C' would suffice to extend each door-section; but it is advantageous to use two of them, one at the bottom and one at the top of the door, with a blank interval of the material a , which may be utilized for advertising or for a map or any convenient imprint or inscription. Each of these lazy-tong series is provided with a latch-bar D, consisting of at least two sections united end to end by a knuckle-joint d , which, as shown, breaks downward for folding, though of course the contrary arrangement may be substituted. An operating-rod F, sliding in guiding-eyes f , attached to upright A^2 , extends from the upper to the lower latch-bar of each door, being connected to both, so that the same movement serves to break both joints and free both series of lazy-tong bars, allowing the flexible sheet a to be wound automatically on the spring-roller B, while the lazy-tong bars are folded together by the pull of said spring-roller and sheet on the upright wooden strip A. As the rods F of the two sections A are in close proximity, as shown in Fig. 1, it is easy by a simultaneous movement of both hands to free the entire door and allow its sections to slide back in opposite directions, rolling the sheet a and folding the lazy-tong bars, as described, thereby leaving open the middle and greater part of the doorway. To provide for more completely opening the latter and putting the door out of the way, each upright A' is hinged at a^2 to the casing Z of the door, so that the door-section may turn back, as shown in Fig. 3, into the

apartment or hall on one side of the door. Instead of this arrangement the door-casing Z may be provided or formed with boxes or cases to receive the folded door-sections without hinging them.

The latch-bars D when extended hold the series of lazy-tong bars C and the entire section A extended also and available for use as a light but rigid door. The weight of rod F will generally suffice to replace the said latch-bar in this normal position when the upright A² is pulled out by hand, as in operating any sliding door, thereby expanding the lazy-tong bars; but in some instances it is best to aid this straightening of the latch-bars by a spring J, bearing at its upper end against one of the fixed guiding-eyes *f* of the aforesaid rod F or some other fixed point and at its lower end against the outer section of one of the said latch-bars, which it tends to depress, of course thereby forcing down also the said rod and the upper latch-bar. This construction is chiefly necessary when the latch-bar consists of more than two sections, as shown in Fig. 9. Of course there is a knuckle-joint at each meeting-point of these section ends, and each section of the latch-bar is attached to one of the lazy-tong bars. All the knuckle-joints fold like the first one, as before described, and all of them straighten out together when the rod is pulled down. It is merely a question of convenience whether the latch-bar have but two sections and be attached to only two of the lazy-tong bars, as shown in Fig. 1, or be extended across the whole series of such bars, as in Fig. 9, the construction, attachment, and operation being the same.

It is desirable, of course, to make the limit of extension of the door adjustable, conforming to slight differences of width of the doorway. To this end the section of each latch-bar D proximate to rod F is connected to one of the first of the lazy-tong bars C, not directly, but by means of an adjustable bracket or plate E, which is elongated vertically, its tapered lower end being pivoted on a screw or stud *e* of said lazy-tong bar, while its broader upper end is provided with a slot E', approximately in the direction of the line of adjustment, said slot being slightly curved to prevent binding and receiving another stud, *e'*, of the same lazy-tong bar, which is countersunk in said slot, but prevents the separation of said plate or bracket and said bar, while also guiding the former in its pivotal adjustment. Both of these studs *e* and *e'* are fixed in the face of the lazy-tong bar. To effect such adjustment, I provide the said bracket with a flange E², through which passes an adjusting-screw *m*, which bears against the nearer side or edge of the said bar C, and a bolt *n*, which passes also through said bar, having its head countersunk in the opposite side or edge of the said bar, the nut *n'* of the said bolt being outside of the said flange. The said screw and bolt together easily adjust the

upper end of the said bracket forward or back and hold it securely in such adjustment; but though they are preferred for such use it is obvious that other adjusting and clamping devices may be substituted, attaining the same end. The latch-bar D is pivotally connected to said plate or bracket at *d'*, allowing it to fold and straighten without binding, but making the said bar and bracket move together as thus adjusted. Since the lazy-tong bars or some of them are attached to said latch-bar, the adjustment forward or backward of the latter necessarily adjusts to a corresponding extent the maximum extension of the door-section.

G designates casings or plates having parallel flanges G', which are provided with holes *g*, arranged opposite each other for the fastening of the lower end of the outer or inner bar C of each lazy-tong series, a bolt or pintle *g'* being passed through the said holes and bar, while the body of said plate is fastened by screws to the upright A' or A², near the bottom thereof. There is one of these small casings G for each end of each lazy-tong series, near the lower corner thereof. At the upper corner of each end of each lazy-tong series a longer casing or guide H is similarly fastened to the upright A' or A² and provided with slots *h* in its side flanges H', which permit the upward and downward play (as the lazy-tongs expand and contract) of the bolt or pintle *h'*, passing through the upper ends of the terminal lazy-tong bars and the said slots for attaching the said lazy-tong bars C to the uprights A' and A². Thus the said casings G and H afford secure and simple means of connection between the several series of such bars and the said uprights. Both the said bars and the said uprights may be of some other material than wood; but the latter is preferred for its lightness and cheapness.

To avoid leaving an opening between upright A' and spring-roller B when the door-section A is extended, I cut away the proximate corner of said upright from top to bottom, making a trough-shaped recess *a'*, curved in cross-section and of sufficient depth to allow the winding of the sheet *a* on the roller with consequent increase of diameter in the cylindrical roll thus formed, the relative proportions and the shape of these parts being such that a line drawn across the said recess from one edge to the other will always touch the said roll or be in such close proximity thereto as will make it impossible to see between said roll and said upright.

P designates the upper and lower bearing plates or brackets fastened on upright A' and provided with flat oblique arms P', extending obliquely over and beyond the recessed corner of the said upright, so as to present the bearing-holes *p* in proper position to receive the cylindrical journals *p'* of said roller, the length of the said arms and their points of attach-

ment to the top and bottom of said upright being calculated to allow the accurate arrangement of the said roller with respect to the recessed part of the said upright, as stated.

5 By the above-described construction and arrangement there is no opening, crack, or interval left which will permit a person on one side of the door to see through it when closed, as the uprights A^2 fit against each other and
10 the roller B overlaps the upright A' in the line of sight.

It has not been thought necessary to illustrate the interior of spring-roller B, as this may be of any construction common to spring-
15 curtain rollers. These are commonly wound by turning by a wrench, one of their journals having a prismatic end w . To retain the tension after such winding, I employ a prismatic opening v , which will receive and fit the said
20 prismatic end w , and being provided also with a hole x , through which a screw q may pass to fasten the said plate rigidly on top of the upper bearing-plate P, which has a hole p registering with said hole q for the passage
25 of a fastening-screw p' into the top of upright A' . The plate Q preferably corresponds in shape and size to the arm P' of said upper bearing-plate P, except that its end containing hole p extends back over the body of said
30 bearing-plate; but of course the shape, arrangement, and means of attachment of said parts, as well as of other parts of the door, may be considerably varied without departing from the scope and spirit of my invention.
35 Of course without recessing the upright A' the spring-roller B might be arranged sufficiently far from the corner of upright A' to permit the winding of sheet a on the said roller; but in that case the roller must be
40 placed so far toward the middle of the door that there would be a long opening, like a crack, between the said upright and the said roller when the door is closed, permitting any one to see through it into the room, or else
45 the said roller must be set so far out on the other side to leave room enough for winding the sheet a on it, while providing for always overlapping the inner face of upright A' in the line of vision that the pull on the said
50 sheet would be too oblique and lessen the durability of the door by the resultant strain. Both of these evils are avoided by the construction and arrangement shown. Of course these are the same in both of the door-sections A.
55

The series of lazy-tong bars fold so readily on themselves that they do not appreciably impede the action of the spring-roller B when the joints of the latch-bars are broken, and
60 the folded door occupies a very small space; but when extended they brace the sheet a effectually besides holding it taut.

This door may be of cheap or costly material and with or without ornament, as preferred,

so that it will suit the simplest and plainest 65 or the most luxuriously furnished houses. It is very light, readily applied and repaired, and not liable to get out of order easily.

When a single section A is used alone as a partition between desks or for like purposes, 70 its upright A' may be hinged to the wall or attached thereto in any other suitable way. Each section of the door may of course be provided with any usual form of knob, preferably screwed into the face of strip or upright A^2 , which is on the same side of the door
75 as the spring-roller.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a door, screen, curtain or partition, the combination of a spring-roller with flexible material constituting the body of the door and arranged to be wound automatically on said roller, expansible and contractible 85 means for stiffening said door and longitudinally-adjustable bracket and latch-bar devices for normally holding said means in extended position against the pull of said spring-roller and releasing said means at will in order that
90 the said roller may be free to operate substantially as set forth.

2. In a door, screen, curtain or partition, the combination of a spring-roller with flexible material constituting the body of the door 95 and arranged to be automatically wound on said roller, a set of lazy-tong bars extending across the said material, a jointed latch-bar longitudinally adjustable by means independent of its joint for locking the said lazy-tong
100 bars in extended position and means for releasing the same therefrom, in order that the spring-roller may be free to roll up the door substantially as set forth.

3. In a door, screen, curtain or partition, 105 the combination of a spring-roller with flexible material constituting the body of the door, a set of lazy-tong bars extending across the same, a latch-bar attached to said lazy-tong bars and consisting of jointed sections, a
110 bracket attached to said latch-bar and to one of said lazy-tong bars and adjustable with the former in the direction of its length, and means for breaking the joints of said sections at will substantially as set forth. 115

4. In a door, screen, curtain or partition, the combination of a set of lazy-tong bars extending across the same with a jointed latch-bar adapted to hold the said lazy-tong bars
120 extended when the sections of said latch-bar are in alinement, means independent of the joint of the latch-bar for adjusting the said latch-bar to a greater or less extent across the door, and means connected to said latch-bar for breaking the joint thereof and permitting the
125 said lazy-tong bars to fold up substantially as set forth.

5. In a door, screen, curtain or partition,

the combination of a set of lazy-tong bars extending across the same, with a jointed latch-bar normally holding the said lazy-tong bars extended and a plate or bracket attached to one of said lazy-tong bars and also pivotally connected to the said latch-bar, the said plate being free at one end for adjustment and provided with an adjusting-screw which bears against the said lazy-tong bar substantially as set forth.

6. In a door, screen, curtain or partition, the combination of two parallel sets of lazy-tong bars, with jointed latch-bars normally holding the sets of lazy-tong bars extended, a rod connected to each latch-bar, in order that by its movement all the lazy-tong bars may be freed for folding, and a spring or springs on said rod resisting such movement and tending to replace the lazy-tong bars in extended position substantially as set forth.

7. In a door, screen, curtain or partition, the combination of a set of lazy-tong bars, for extending the same, with a jointed latch-bar normally holding the said lazy-tong bars extended and an adjustable plate or bracket attached to the said latch-bar and also to one of the said lazy-tong bars, the said bracket being provided with a screw and bolt bearing on one of the lazy-tong bars and having a slot-and-stud connection to the latter allowing said bracket and latch-bar to be adjusted for regulating the limit of expansion of the lazy-tongs substantially as set forth.

8. In a door, screen, curtain or partition, the combination of a set of lazy-tong bars for extending the same with a latch-bar which normally holds the lazy-tongs extended, a plate or bracket connected to said latch-bar making the said bracket and latch-bar movable together in the normal longitudinal line of the latter and a pair of devices operating against opposite sides of one of the lazy-tong bars, for adjusting the said bracket or plate in said line to regulate the limit of expansion of the lazy-tongs substantially as set forth.

9. In a door, screen, curtain or partition, the combination of a set of lazy-tong bars, for extending the same, with means for holding the said set of bars extended, a plate or bracket pivoted at one end to one of said bars, but having a stud-and-slot connection thereto at or near the other end and connected near this latter end to the said means, and devices for adjusting said plate or bracket to govern the limit of expansion of said lazy-tong bars for the purpose set forth.

10. In a door, screen, curtain or partition, the combination of a set of lazy-tong bars, for extending the same, with a latch-bar for holding the said lazy-tong bars extended, a bracket or plate to which said latch-bar is attached, in order that they may move together, means for adjusting the said plate or bracket forward or backward on the part of the door to which it

is attached and means for holding the movable part of said plate or bracket to the same and guiding it in said movement substantially as set forth.

11. In a door, screen, curtain or partition, an upright recessed at one corner, in combination with a spring-roller arranged in proximity thereto and flexible material forming the body of a door-section or door attached to and arranged for automatic winding on the said roller, the latter being at such distance from the wall of the recess and the latter being of such depth and shape that there will be space for the cylinder of such material when thus wound but a line drawn across the said recess from edge to edge will always touch the said roller or be in such close proximity thereto that no interval will be left, permitting inspection of the apartment on either side of the door through said interval substantially as set forth.

12. In a door, screen, curtain or partition, an upright having bearing-brackets attached thereto at its upper and lower ends, in combination with a spring-roller journaled in the said bearing-brackets and a sheet of flexible material constituting the body of the door or door-section and arranged to be wound on the said roller, the said upright being provided with a recess to receive the said roller and these parts being of such relative size, location and shape that a line drawn across the said groove from edge to edge will always touch the said roller or be in such close proximity thereto as to leave no interval through which it will be practicable to look into the interior of an apartment substantially as set forth.

13. In a door, screen, curtain or partition, the combination of two upright rigid parts with a spring-roller journaled in attachments of one of them, a sheet of flexible material attached at one edge to the said roller and at the other edge to the other upright part, lazy-tong bars attached to the said upright parts and arranged to extend with the extension of the said flexible sheet, means for holding said bars extended against the pull of the spring-roller and means for releasing them in order that said roller may wind the said sheet, the upright part which supports the said roller being provided with a trough-shaped recess at the corner opposite the latter and the distance between these parts and their relative size and shape being such that a line drawn across the said recess from edge to edge will always touch the roller or be in close proximity thereto substantially as and for the purpose set forth.

14. In a door, screen, curtain or partition, the combination of a spring-roller and a flexible sheet attached thereto for winding thereon, with bearing plates or brackets which receive the cylindrical journals of the said roller, a locking-plate having a prismatic opening

adapted to fit on a correspondingly-formed part of one of the journals of the said roller, and means for detachably but rigidly fastening the said locking-plate upon one of the said bearing-plates in one position only substantially as set forth.

15. In a door, screen, curtain or partition, a series of lazy-tong bars arranged to expand with the same or allow it to contract, in combination with a fixed guide-casing, the side flanges of the same being longitudinally slotted to receive the ends of the pivot-pins of said bars as they move up and down in contraction and expansion substantially as set forth.

16. In a door, screen, curtain or partition, a series of lazy-tong bars arranged to expand the same, in combination with flexible material forming the body of said door, a spring-roller on which this material is wound when the door is to be opened and a fixed guide-casing, having longitudinal slots in the side walls of its casing, in which slots the pivot-pins of the joints of the said bars move backward and forward in the expanding and contracting operations substantially as set forth.

17. In a door, screen, curtain or partition, a pair of uprights in combination with a sheet connected to one of them, means for winding the said sheet toward the other, a set of lazy-tong bars connecting the two uprights and flanged plates or casings G H attaching the ends of the said bars to the latter, the casings H being slotted to allow the upward and down-

ward play of the lazy-tong bars in extension and contraction substantially as set forth.

18. In a door, screen, curtain or partition, the combination of a flexible sheet constituting the body of a door or door-section, with uprights forming the inner and outer ends of the same, lazy-tong bars arranged in series between the said uprights and plates or casings, which afford means of connection between the ends of said bars and said uprights, some of the said plates being adapted to permit and guide the upward and downward play of the said bars in extending and folding substantially as set forth.

19. In a door, screen, curtain or partition, a pair of uprights constituting the inner and outer ends of a door-section; a flexible sheet constituting the body of the same, means for automatically rolling the said flexible sheet thereon, mechanical devices interposed between said uprights for holding the door-section extended and serving as a backing for said flexible material and means for removing the resistance of the said devices in order that the said sheet may be automatically rolled substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE J. RECORD.

Witnesses:

A. B. CRITTENDEN,
MYRTLE E. SHARPE.